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Dielectric barrier discharges prevent cracking in hard latex dispersion coatings SEBASTIAN DAHLE, THOMAS WATERS, WOLFGANG MAUS-FRIEDRICHS, Clausthal University of Technology — The deposition of coatings from latex dispersions is commonly used in various industrial and commercial fields. Most of these paints use acrylate or methacrylate copolymers, since these are well resistant against weathering, UV and many chemicals. However, the hardest copolymers, which offer the highest abrasion resistances and mechanical stabilities, suffer from a cracking that is hard to prevent. Many elaborate approaches try to circumvent this behavior, which is known as the film formation dilemma. By applying a dielectric barrier discharge, in air, on to the wet film for short periods of time, we were able to prevent the latex film from cracking. Even though the physical effects of the plasma treatment, such as an increased drying rate and a slight temperature increase, did influence the film formation, the observed effect appears to be mostly caused by chemical changes in the surface layer.

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